Notebook Series -- Pocket Notebooks
Notebook, PN-18-04-01

This pocket notebook, which covers the period April-August 1918, was used by Edison at Key West, Florida, and West Orange, New Jersey. Included are notes and drawings pertaining sound detection devices and other means of locating submarines, camouflaging techniques, torpedoes, and other war-related topics. Some of the notes, including data on the penetration of steel plates by machine guns at various ranges, were copied from published sources. There are occasional disparaging remarks by Edison in regard to the Navy Dept., its Annapolis-trained officer corps, and its aversion to risk taking, along with comments about the proposed Naval Research Laboratory, which Edison believed must be under civilian management. There is also criticism of Henry G. Wolfe, one of several experimenters loaned to Edison by the New York Edison Co.

Many of the entries made after Edison's return to West Orange in May refer to the production of disc records. Included are notes on varnishes, plating experiments, and the manufacture of record blanks. There are also notes on Lalande primary batteries, chalk telephones, and chemical experiments involving nickel, lithium, and bismuth. Beginning on page 167 is a series of entries with the title "gas war notes." Among the employees mentioned in the book are Charles T. Dally, John A. Hanley, Miller Reese Hutchison, and Sherwood T. (Sam) Moore. The front cover is stamped "Cash" and is marked "Jany to Sept 1918." A stamp on the flyleaf indicates that the book was purchased at Crain's Book Store in Key West. The book contains 174 numbered pages.

PN-18 [illegible]-01
E-1697

36

25

36
85
4
125

360
250
1000
1000
10

28.2

250 | 800
750
50

3.2

36
32
72

108
2
114

115
85
60
260

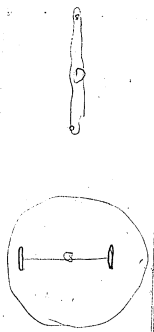
CRAIN'S BOOK STORE,
BOOKS, CIGARS, PIPES, STATIONERY,
POST CARDS,
CORNER 2ND ST.
KEY WEST, FLA.

2.6

April 1 1915

Possible noises on board

1 Engine
2 Circulating Pumps
3 Boiler Pump
4 Ventilating fans
5 Dynamos
6 Walking about
7 Water moving in boilers
8 Wireless
9 Projections from boat into water
10 Boat vibrates. Cable out + coiled
11 waves striking boat
12 Effects of screw on fish
13 Unwrapped stays. Vibrating
14 Bilge keel
15 perforated skin
16 Bow waves
17 Vibration of piping
18 Vibration of cable in water
19 Noise from Ocean



20- Rudder shaft loose on sheave

21 Intermittent stresses in shaft by Gravacks

22 Vacuum pumps

23 Chafing & dirt in the sea

24 water hammer in pipes

25 loose doors & windows

26 Handling Coal

Throw out of finish lowered in water at dock - pull grind bell used, got 350 ft with 3 stage audion

got 106 ft with old Self Vit bell without audion this is 12 times

NOTE Sensitive

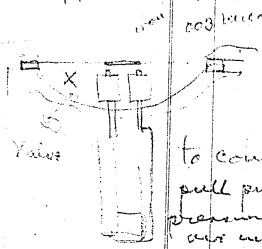
The same phone in
fresh water (waves
going thru wood
gives very good
results 165 ft —
with audion

The 50" funnel
5" mouth — 1" rubber
over holes dia
Listening with bad
tube, vacuum
around funnel
was not so loud
as [illegible] single
dia — 1"

The advantage of solid
rubber has for transforming
motion ~~from~~ of sound
waves from water to
air must be due to
fact it is a poor conductor
of heat & on the compression
gives cold & on
expansion gives heat
This prevents any loss
of Energy in the sound
waves. Hard Rubber
should be OK too.
think energy of sound
waves dissipated by a
metallic funnel.
Hard Rubber may be
very much better

or the multiple tubes
on funnel lined with
.008 of hard rubber
Vulcanized on & polished
Even soft rubber might
answer but think
hard is best
The very small surface
of multiple tubes as
compared to a funnel
for same deg of
Condensation is probably
reason former is
much better —

It may be non diaphram
should have a thin
Coat of hard rubber
.003 — or even soft,
Vulcanized on a Hard R
should not be Loaded with
muck
Thus dissipation of
heat in the waves
of sound may be the
Nuggets in the wood pile



Paint made with Cast
non heat conducting
paint. This substitutes
fine elasticity of the
air for poor elasticity
of graphite all of iron
and clamped at edges
for the loss and
Energy by low heat,
should work thus
double efficiency
of Conversion

It may be impracticable
to use this in fresh
but can be used
as an Accumulator
Reservoir —

The compressing bag
may have an initial
pressure to balance out
the magnetic pull &
then if limiting pins
used might be OK for
fish — especially if we
can control depth of
fish by telling out
or in Cable

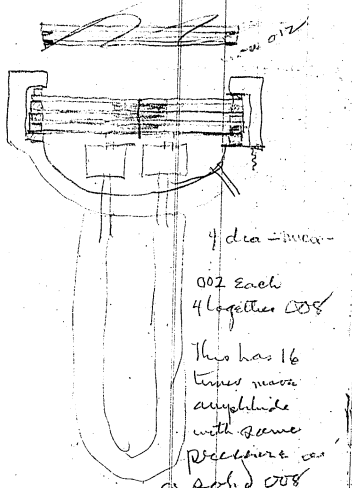
Experiment with wooden
dowel on shows &
also 1/4 & 1/8 holes
with this Rubber over plate
left legs showing
standard Bell thread
Rubber was half the
resistance 37½ ft to #25

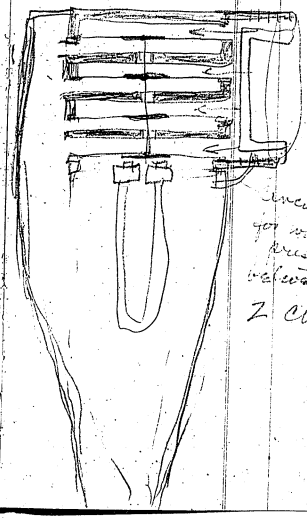
This is very favorable.

Musical notes of different pitches, are audible for distances varies inversely as the square root of the pitch

Speed of sound in pipes filled with water

Dia of tube	Thick of walls	Metres per sec
.720	032	998
.468	025	1046
.338	020.8	1164
.600	080	1213
.440	080	1281


4 dia - inner -
002 Each
4 together 008
This has 16
times more
amplitude
with same
pressure on
a solid 008


Circulation
for water
pressure
between the
2 Chambers

If underside of recording diaphram was a small closed chamber the amplitude is small as the elastic breath of small column not so very small (18) gives small amplitude without great compression – character of column of air so long say wave length of 128 per second. The elasticity is spread over long column & great amplitude is permitted to diaphram – It's like a breath of air one inch Rubber band or a 12 inch with same pull –

length of air column for little chorus should not be less than 36 inch

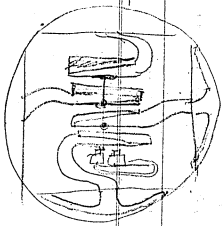
which corresponds to 128 second – lower notes will have diminished amplitude if air column is not made longer –

On other hand the compression side of chorus should be as small as possible to get greatest condensation + that is season chamber is necessary –

If no horn on recording lever will not follow the record if horn held over take it follow if funnel put on it follows it's exact reasonably one note jump precisely if hole in chamber enlarged for if plate on opposite side

it would allow
alternate but not so
loud —
Possibly very thin
leading cords be
made to record without
jump by longer pumps
or by controlled
Chamber on free side
this chamber adjustable

3" fish —



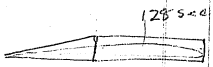
Each seperate —

In test — when running
shake cable above & below
water level or wind —

with 2" plate 1/8 hole
012 Rubber — along
phone 335 ft with
standard Beck as
against 700 ft
with phone receiver
sup. 1" 3/16 - Rubber on
& listening direct
~~Both~~ Used 3 stage
Audion 3/2 amp
& it is 4.3 times
less sensitive than
listening direct,
according to this
Mason tubes can
hear 2.15 times
further

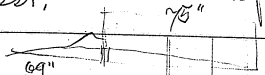
700 ft by direct listening
no phone was done
where very quiet whereas
the Experiment with phone
was very noisy
probably 400 ft
is proper distance
& therefore probably
phone is 3 times
less sensitive
instead of 4.3 times

It may be we have worked our formula wrongly ~~that~~ that
Here I showed for a full drawn candle 128 sec of strength
paper before lapse



Try it carefully

Best, 3" dia — 12 ft —



Our submarine at Key West under 50 ft water should be painted Matte black with 11% of Lamp head white to make invisible
1" black scant 1/8 white well blend at 800 feet

Continental Alphabet

		Changes letters	
—·—·	C	X	
··—·	F	X	
·———	J		
·—··	L	X	
———	O	X	
·——·	P	X	
——·—	Q		
·—·	R	X	
—··	X		
—·——	Y		
——··	Z		
·————	1		
··———	2		
···——	3		
····—	4		
·····	5		
—····	6		
——···	7		
———··	8		
————·	9		
—————	0		

unpopular

Nobody in Navy will do anything on account of the tricks that an innovation would bring in. If there was a Corresponding reward They would take tricks —

No training as that brings tricks —

Very poor records as no Corresponding rewards no trophies

No training at Annapolis to Cultivate the imagination no Theses for men to Exercise their imagination

Brocan having charge

Personnel utterly unexplained phraseology not used, no

Judgement of men no experience

No members of a selecting board should have any hold over - select board each year

Naval men should operate Civilians invent. + Civilian board get new things tested separately

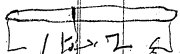
No strategy no regulation

Submarine on top make very large bow wave + white smoke 6 @ 8 times their length low down on water - tip of periscope about 3 ft below top of periscope

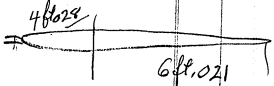
Bow wave has length from Bow to Conning tower, white. 2 ft high sea having some white caps -

Wooden mast 1" OD on side for taper

1 to 2



fish 10 ft



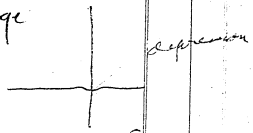
on a side -

This is proportion of Morris model -

Morris model at 9 knots shows not a trace of bow wave at junction of air & water, & no early & blind there is a slight depression

as water outside is a little higher than at.

Edge



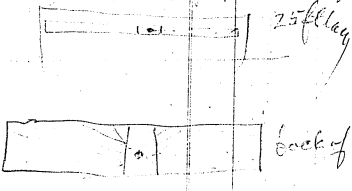
There is noise but only knocks which may come from boat, used stick & teeth there is a continuous sound but not great this also I think comes from boat

Boat is dinky from [illegible]

Has small flat aft wood

Also can make a
white sheet
under water
at night —

for ship light
Lamp in box 12" sq
25 ft long

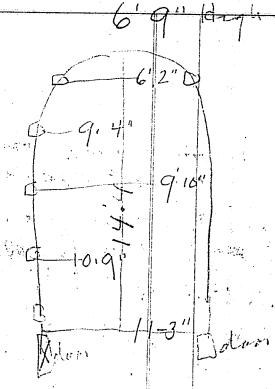


box white front of glass
or Celluloid so that only
to let Ultra Violet faint
thru — visible 1000 yds
when used during

is invisible —

Disc = Dry each section
with a Sulphuretting
Compound, also an
oxidizing Compound —
to Oxidize & Sulphurize

Dochom Bow Cabin.



Disc

Fusion by Soda Oxide
Tuning Energy Energy with
Reserves

Experiment with Magnesium
Carb, oxide, etc Coarse
ofine to get a binder
to obtain high % of
light reflection
for Camouflage

Disc = Try Experiments
with a crude Rubber
for Disc binders
burnt or oxidized

Use of sulphur
attack Nickel Silver
moulds if not
could use Sulphur
mixed with
residuum for
Disc —

Make a Varnish of
Linseed oil & litharge
with Liquor Varnish
& take to oxidize
oil then cut

Treat Linseed & also
Clean Wood oil
& get it at book 9.
Saw about Wood
oil —
Saponify & Distill
& Isolate the fatty
ingredient & Examine
oil not acted on
etc —

Saponify all the
residuum & the
precipitate & get
Soap —

Acc of Brotherhood

[illegible]
tied to [illegible]
& started

[illegible] on [illegible]
rolls, 66 [illegible]
instead [illegible]
[illegible] Collubon
a cheap Collubon
[illegible]
[illegible]
[illegible]
[illegible]

Disc [illegible] Cubon

[illegible] glass [illegible]

[illegible] oil may [illegible]
be made [illegible]
Bone black [illegible]
Chinese wood oil
for Magnesia white

16 holes 1/4 holes blow
9 [illegible] Mica [illegible] coal
thick, it would be safe
to work at the
[illegible] over
200 ft deep

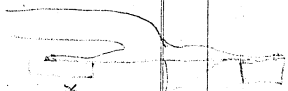
April 19 –

[illegible] different fresh blooms
[illegible]
[illegible]
family Cabinet
[illegible]
[illegible]
[illegible] Reason
Lasses to 42.

[illegible]
over [illegible]
[illegible] 1/8" [illegible]
[illegible] 42

1600 ohm head receiver
in air chamber with
Chamber at phenomenon
& enclosed in Rubber
Sheet around finch
1/8 holes, enclosed
[illegible]
H [illegible] 45

There is something wrong
with the collodio
Cuticoflagging paint
When boards nearly
disappear it looks
pale yellow. Exactly as
black smoke looks
when it turns out
+ gas dirty yellow shade



Mica 1/2 on X

Cardboard

It the board probably of impurities in lead. Try lengthening

Make 6 brands [illegible]

a reel sliding side lengthwise to adjust

Ela

The fish with dolphin [illegible] with body — the saw plane goes far more noise than plane cross ways of fish. This seems to prevent fish vibrates side wise and not longitudinally & to this effect vibration [illegible] causes noise. May have to have fin full length & [illegible]

#3 [illegible] to 20. on
60 years also [illegible]
[illegible]
[illegible]
perhaps [illegible]
[illegible]

[illegible]
other [illegible]
being [illegible]
[illegible] hands,

[illegible]
Brass tube with [illegible]
Rubber tube [illegible]
[illegible] round
[illegible] on
[illegible]
this [illegible] known
35, [illegible]
[illegible] BUT
[illegible] not
solid [illegible]
of course the

[illegible] was weak

so then was only
2 tiny [illegible]
[illegible]
and hollow wood
to not [illegible]
with one [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

which is very bad

The test [illegible]
has some value

Have it tested
at [illegible] with
[illegible]

Always [illegible]
[illegible]
[illegible]
[illegible]

Weigh it —

[illegible]

[illegible]

[illegible] 1 inch - [illegible] [illegible]
Rubber [illegible]
that I have at 10
but at 25 ft hear
to 12 - [illegible]
at 100 ft 24 to E
no East wind [illegible]
no [illegible] on account
of Rubber breaking
when the [illegible] to
boat [illegible]
[illegible] This is
a Doubt

Shows noise due
to boat leaves
developing cable

we now used a
bag & [illegible]
Cable on outrigger
bale —

nothing bad
[illegible]

[illegible] sparked
fish probably

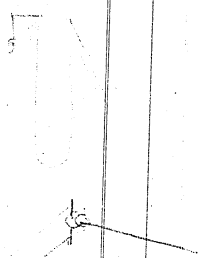
Struck bottom &
caught on rock —

Cement,

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

[illegible]
[illegible]

House a [illegible]



Army book

Penetration of steel plates by machine gun

Range	Penetration
167 yds	.52
100 "	.4
200 "	.3
300 "	.21
400 "	.19
500	.1
600	.07
700	.04
800	.03
900	.02
1000	.000

Seems wrong

Columbia Record

formula

Shellac 30% + sometimes richer

Byrates (Pipeclay) 68%

Cotton black 2%

add Lampblack for color sometimes

add rotten stone instead of so large proportion of pipeclay

Calm - ideal
1050

300 ft -

Boat.

peri 3½ ft out.

No boat in sight
1057 — dittto 1107
1120 no boats in
sight - hear on phone
boat at 1125 - no
boat
on phone 8½ of total
is sub at 4 knots

1124

Near end of phone -

1130. about done on
phone. Cant count flow
surely — 1600 ft
limit -

Take lost 45
min -

45 min 385 ft min

385
45
925
540
1732 ft lost

5775 yards

2.88 miles
nautical

Running back
Qub. Walk deck
just at water line
or little lower

12 58 – aland
1800 ft gone –

4 boats in sight
Steamer 2 @ 300
yards in opposite
directions in
sight

19 mins on lines

lost, 2438 yards
1.215 miles nautical

1750) 2438 (1.38
1750
6880
5250
1630

Its a little
rough – white
caps – crowes
2 @ 2½ ft
Men rowing
on phone & like
women knocking
boat & coaches
groaning on
lines –

Phone broken
by the boat
Hulch 1 see Hudy or
Nutt 1 3 5 140

I think Bell dia
makes perhaps 50
vibrations of touched
once & condition brings
them out & that
knocks is cause
of big noise
put upright &
damper by shot
or 20 mesh stuff
all over

Submarine - moving up & down
and a listening station
for actual tracking of
listeners ? find out what
is really necessary

Blue Prints prepared need
200 ft boat,
test all the 9 subs

Hutchison resigned
Hanley - Meeting Fuller
first night after filling
back up gas meet
Fuller at Engineering
Club - Rice Fuller +
attend subs only 300 yds

away.

Very limit when no results
head —

Big diaphragm when
quiet (idea) & when
little puff off
Montauk Point —

1 Depth bomb, mined —
vertical shaft —
360 ft away liable
to be closed if need boats
have lower speed
than 22 knots —
bulges in plates
of destroyer,

Complicated tube
system no doubt
2 way tubes ok
+ be very much
improved —

If new tube be built
must be safely under
Civilian Sec'y &
Civilian Manager
as protection of
Navy against
turning over the
operation of his
plant

Board not unanimous
Inter Commission

Standing still

With perfect conditions

5.775 yards is limit
listening in calm water
and boats in sight

With white caps off Montauk
moderately rough but
considered a clean good
sea scarcely any
rolling or pitching

2438 yards limit
or two-masts fog in sight
Listener varied
18% higher Successive
of Ear three 6 other
mic
Sub 3.85 Knots hour

only Coming towards approaches

Checked by Turning
Revolutions of Engineer

Telephone listener -
Tow in sight Hecla -
listened at 100
Rev White Hawley
at 135 @ 140
Showing that Hecla
headed Tug & not
sub Whereas Hawley
Evidently did not
hear ~~[illegible]~~ tow

Disc tried mix of Gilsonite
& Rosin with Red lead
hardened much raised
up — Couldnt scratch
PROMISING —
Gt. Gilsonite alone
Rosin not reservoir
P60 not well mixed (thick
it adequate a little
Coal tar & Gravel
dirt — Clogging
later — I find the
66% Residue from
distilling Gilsonite
dont scratch with

finger nail — This
along wallant
P60 — after remelting

think we shall have
to heat and moulds
just below the stick to
point to prevent
Chilling

Elaïdin,

1 cc Hg dissolved 12 cc Cold Nitric
1.42 Sp gr
2 cc of deep green red
then shaken in a corked
graduated bottle with
50 cc of oil repeated
every 10 min for 2 hours
gives a solid product
some soft, hard, &
some resin bottle
Olive in 24 hours it
sounds when shaken
very firm

in making Elaidin turns in
Element

Solid hard heavier quantity
Olive, Almond, Earth nut,
hard, Sperm,
all other oils softer

Resinate Soaps

100 pts Rosin – 33 pts Soda
Crystals 1000 pts water
boil for hours cool down to
50 C by addition of
1000 pts water
Can add drops Soda to
make Resinate

Anilene Hydrochloride

Hardens & makes Rosin less brittle stands a lot —

A surprisingly small amount of aniline acid make rosin so it cuts of Carpet Rosin hardens & then usually it will be good

Rosin just melted in small Casserole on hot plate & some ~~Boiled~~ hydrated Ferric Chl turns black & melting Point goes up — not so brittle PROMISING Reaction

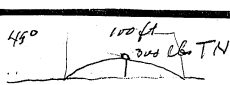
Wheel 30"

Total width	TNT Weight lbs
6"	180
10	323
18	613

Dont forget the Cruciable steel Zig Zag protector

Soak Rosin in Clean till dont run + dry it -

Try Reg K_2NO_3 + Charcoal no S with 1/4 of China Clay - also Rosin



This will move Trench this -

85 KNO_3 15 200 mesh charcoal no residue quick good smoke

ditto $NaNO_3$ 1/4 gram residue slower smoke not quite so good

think K OK for bomb

lbs TNT	Length Trench Carried
50	55
100	69
200	87
300	100
400	110
500	118

Very good Dusker powder
90 KNO_3
15.8 200 mesh Charcoal
25 Sulphur Caust Soda
probably Explode when Confined —
possibly should be
12 of Charcoal to
get rid of a little
Residue left —

Paraphenylenediamine is readily obtained by heating p-dichlorobenzene, Ammonia 25%, & Copper Sulfate for 20 hours at 170 @ 180 & finally at 200 C
Actiengesellschaft fur Anilin Fabrik D R P 202170
P ulmt 9 gms
W2 ~~Thorse~~ P.D. chl Benzol

(Fine)
Tetrachloronaphthalene & ~~Bromine~~ Resinate
in proper proportions looks & acts like shellac. Cheap. Shaving dust Resistant.

of the 3 or 4 Resinates

with Iodine Prep

Reg Varnish Pb resinate

best no bubbles clear

Solubility no gas

P. Ib like shellac

For Tough Celluloid like

Manilla Copal +

Tetranap - like

lead bends - is

hard

Try Iodizing surface

of Copper Wood & Glass

Increase to see if separates

Try Iodine in Alcohol

& also other solvents

see how this can get

it & if stays OK

~~Use~~ Use Chloroform

Bismuth hydroxide can be made

to have various opacities

Try also Bi ~~salt~~ Compounds

See if Tribromophenol is

plastic, also phosphomolybdate

of ammonia

Iodine in Ether for Lodizing Copper Cathodes

ditto Vapor of iodine.

Black Copper Cathode with Fe then reduced then plate with Nickel

Dip Cathodes in Varnish dissolved in Ether, Amylacetate Chloroform etc / graphite plate.

Vulcanize Sulphur on Cathode ditto plates

Plate by High M.P. Carbon instead of phenol Resin

Mix Phenol Resin + add The Chrome Clay

ditto dissolve in alcohol mix & dry work on Roll

Esters Vital fumes in air, fume phosphorescent.

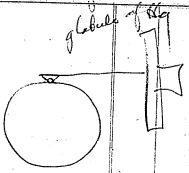
Dithiocarbonic Esters of type $OR \cdot CS \cdot SR$ + Thiocarbamic Esters of type $NR_2 \cdot CS \cdot OR$ fume in air at ordinary temperature Emitting vapors which appear luminous in the dark.

The Ester $CS(OMe)_2$ also its oxidation.

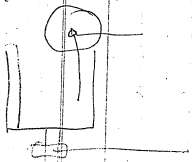
Chem Soc Jnl 98 1910 p 295

Distill Wood Tar, they are supposed to be Aldehyde Resins

Check below



or amalgamated Hg globule so it sticks



Also

Rotate the magnet, one pole brushed to phone

Ether
Rosin Sol for
copper needle dip
for graphite

10 cc Ether 1/2 gram
5 grms Rosenita
100 cc Ether

Try Chemx Clay
Salts that easily melt in
water of Crystallization
by heat on cooling water
should be steam bath
& Cement Chalk
together.

Produce lamp black by putting it in Oleum & then neutralizing

Hard Pitch (Coal tar) 60 pts
57 China clay 3 pts
fairly hard to Varnish
hard to Cent,
Promising

Brachman plate a strip of steel with Nickel – [illegible] in 24 hrs
[illegible] rapid [illegible]
[illegible] —

Cumerone Resin + China Clay for moulding
manufacturing purposes for
Storage Battery

Kerosene BP 200 @ 250
with its own Vol of formalin
& 0.75 time its Vol of
[illegible] 80% get solid Condensation
products [illegible]
[illegible] products [illegible] Weight

Use 5% Para in plain Varnish (Extra)

no lampblack or Sandrac, but
with 1/3 more 6/4 & 1/3rd more

1 Add, a little ammonia acetate
✓2 = Reduced Nickel,
✓3 Chloride ammonia
4 Pass HCl thru Varnish
5 Cupric chloride
✓6 Chloride Tin.
7 other chlorides salts Varnish
8 Acetic glacial
9 Arsenic
✓10 Benzidine
✓11 Bichromate potash
12 H_2SO_4
13 Nickel chloride
14 Pyridine
15 Thiopen
16 Nitrobenzol
17 Residue from Phenol still
18 Benzoic sulfonic acid
19 Bisulfide Carbon

20 Zinc Chloride -
21 Nitrobenzene
22 paranitrophenol
23 Bromine or tribromophenol
24 Naphthalene
25 Naphthylamine
26 Tolidin A + B
27 a Sulfate.
28 Orthophenylendiamin
29 Metaphenylendiamin
30 Iron oxide ferric -
31 FeCl -
32 Pb Resinate — Peroxide lead, quicklime

If possible a catalyst like we had of 5% para would work
long time it would make
a pure varnish

Must get to attach piece of
Copper to Iron and see if
dont burn with darkness
of Oil – also of Copper
Connector has anything
to do with it
Also try Metallic cement –

38.34 %
3.6
.398
3.95
53.68

Best smoke

90 grms. KNO_3
16 grms Charcoal
20 grams Na_2CO_3

71.43 KNO_3
12.70 Charcoal
15.8 Carb Soda Calcy
99.93

Rapid fire Normal Experts

100 grms Chlorid Potash 12.6 [illegible]
9.4 Chlorid
1 para
10.4 6/4
140 Dilute alcohol
6% Para Continues [illegible]
1½ hours 137.7 [illegible]

25 90 KNO_3 16 char 20 $NaHSO_3$
Pretty good no residue
fairly quick

26 90 KNO_3 16 char 20 KCl
more smoke than 25 no
residue fairly quick

27 90 KNO_3 16 char 20 NaH_2PO_2
Little less smoke than 26
Explosive quick - no residue

28 90 $NaNO_3$ 16 char
20 $NaHSO_3$ -
Very slow poor smoke
had residue

29 90 $NaNO_3$ 16 char
20 KCl good smoke
slow — [illegible]

30 — $NaNO_3$ 16 charcoal
20 $NaH_2PO_4 \cdot H_2O$
good smoke slow
a little residue

Reg Varnish 1/3 more
6% + 6% parts of the
Resin 28 cc of
Varnish 1 cc of
glacial acetic
Condensed in 25
minutes 135 [illegible]
[illegible]

Det of ¼ p unloaded

Pierra for accelerator.

600 ft X-XX-	1600 ft
500	1732
400	1832
300	1908
200	1960

100 ℔ Resin 14.5 free ℔

7.5 - Phenol

1 Para

1 Sandrac

7.8 6/4

140 oil

5 Lampblack

3 Ochre

7.15 Vis

47% solid

of solid 47% 85% as Condensate

Both Mg & Mn Resinates
dissolved in hot rosin —

Melting point Can be
raised to any Extent
by Manufacture Resinate

Alumina Res — not
Salt Melted Rosin —

Mn Resinate dissolved
till it sets in Rosin
Hard + OK Thick
well not cut

High softening point
OK — Fe Hydrox
in Melted Rosin

Di acetate Mn OK

Kalum 24 water loses 10 at 100 C
at 120 C 10 more +
the balance of 4 when
brought to 200 cent

Tetrametaphosphate of lead
$Pb_2 P_4 O_{12}$ formed by heating
Oxide lead + glacial phosphoric
at 300 — ~~Decomposes by~~
~~Sodium Sulphide~~ by
decomposing it with
Sodium Sulphide to get
the Sodium Salt. — Is not
a crystalline salt but forms
with a small quantity of
water a Viscid Elastic Mass
+ more water makes it
gummy which contains
a Jelly

The tetramethylphosphitate of
Alkalies Metals precipitates
Yield precipitates with
Sol salts of Alkaline
Earths —

Acid Sachrate of Lime
Melts & is then Hydrogenated

Also make Caramel at
working different temp
from Cane Sugar & Glucose

Sodium Peroxide hydrochloride
$Na_2O_2 \cdot 2HCl$ — pass dry HCl into a
suspension of Sodium Perox in
Carbon tetrachloride until recovery
gain of weight is allowed — Collect
& dry product (forms Chlorides
peroxides, readily sol in water
Contain 10% available oxygen
G20 from Jaubert DRP
229572 — Chem abstracts
1911 — 489

Dry glue in fused alum
Melts Caramel at 160
Silicate Soda

2 Rosin 1 Sulphur

11 slaked lime, Resinous mass

Distill Rosin down

1/4 1/3 & 1/2

see if residue better than Reg rosin -

ditto (wood) tar pitch

Liquid glue 100 glue 110 water 40 Molasses 35° Baume

10 @ 20 lbs Pot Carbonate

4 @ 8 lbs Ammonia Borate

100 lbs water, on heating a glassy mass is formed

Galalith -

dis Casein in soda Carbonate filter then precipitate by acid dry around - then its treated with formaldehyde - is horn like material like celluloid

Dry Tragacanth with Chemically Aqua Aqua - Ø

Print Aluminum Record in
Powder Exposure for dif
lengths of time to air of
then graphitize & test
surface &
also without graphitizing
dif lengths of time Exposed
to air

Make some Varnish in
little bulb with 90
85 80% alcohol up
to Limit varnish would
dissolve - using the
% of alcohol the dissolves
leaving Exposed

Use brush on metal
blank then graphitize
& print record of
do all the tests
varnish with & without
Varnish drop tests
Etc

Took 30 alcohol 25
placed Resin - 2.50 grms 6/4
Paris - 1.25
Dissolved all - then
added 7 grms water
~~to all bulbs~~ Didnt precipitate
any - went to clear varnish
this makes 75% alcohol
strength - added after hour

7 grms mercuric chlorid
dissolved in some
but it had got thick

The first lot with 7
grms water & added
5 drops HCl &
Condensed at 135° F. for
in 5 minutes —

Osmorion, Use a
Manometer single shell
Hg Condenser to turn
the Dorsal Check Phones
for amplifying —

Make pneumatic Corks

by using hardened
rubber or a clay or
other resin. Then immerse
in Chl Sulphur in a
Solvent
bath to get vulcanize
make them —

Try Blanc Fix for
Chalk Mélanographe —
Treat in everything
acids & Cl
& everything resolve in
KOH or alkalies

ditto Lithoptione

Platinum stone.
Fr Kerrsdyne

With Blanc fix
Try all kinds of
Solutions —

Try KOH.
also Oxides not in the alkalis
green Co Ba. Sr Fe Ni Mn Cr Cu Cd
also Hydrogen [illegible]

1:1 % alcohol
Zinc 150 Room 3 ess China
Clay 15 flock Sequot
~~Pb~~ [illegible]
Little [illegible] Tile Ismalli
about [illegible]
Vice versa
[illegible]

Would try hydrogen
then dehydrate the carbonates

Dont forget to make
acid Chlorides as Tungstic
worked with acids —
Try Antimonic acid Tungstic
Metastanic Uranic
other solid acids Zirconic
Silicic —

Think there are numerous
organic substances for
Chalks on EMG not
attacked by KOH.

Phosphate Lithium for chalk
use Scott,

precipitated K or Na salts
for electric or Kathode
test then attack or dissolve

Inorganic lime percolate is as
usual as Agl.
[illegible] from the gelatin with
[illegible] amount of [illegible]
in [illegible] Sol.

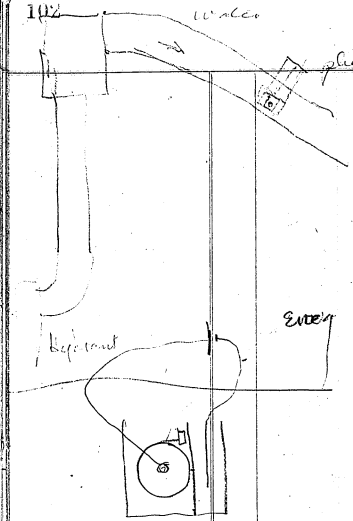
Ammonium Magnesium

Phosphate [illegible]
percolate usual [illegible]
for Ethric [illegible]

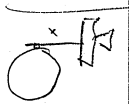
Lenses make 2" dia
1½ lens Meas or 1/4 kolo
plate - Chamber thin at
extra dia over reg
The metallic chamber shown
by lined with Meas
Put only & Celluloid to
dummy position -

Ammonium Zinc Phosphate

precipitate Uranate K or Na
for electric - not applicable
K



deposits a metal or an oxide
which gives friction telephone
perhaps a stat be better



Amalgamate top of
X tube sensitive dia
also drop of Hg perhaps
HgO is made reduced
gives friction be very
sensitive - perhaps
amalgam work

Try Baking Chalk
& use of hydroxide bubbles
baked & not baked

Rundgum Quoted by Ralph
Foster Co Reg
100 mesh 35 Ton
150 " 40 "
200 " 45 "
no reason to order less than ton lots
Brass 2½ dia nickelplate —

With Chalk Rocks use
diaphram ½ dia also
1 3/16 very thick —

I think my vacuum
inside out. Base hogs
with a Vacuum dented
over while doing work
Lumpblock that

the scratch lyons can
be eliminated, on
very fine velvet,

Try Experiment Al Wolff
dip white wax in
Iodine in water
then in Nitrate
Silver then in
formaldehyde to
produce a clear
also Iodine Vapor
Use of formaldehyde
may not be necessary
in plating Cath wills
do not deposit direct
reducing the silver

L. C. H.

Do away with Graphite

1st Immerse in Iodine then immerse in Nitrate Silver, then reduce by Current, - also try in Vapor of I

2 Add Glycerole of Silver to our record work of the current - decomposing then when in plating Current would deoxidize it & give Silver Surface. Perhaps Chl. Silver will dissolve or melt into wax or some fat of silver

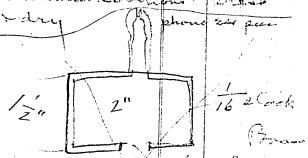
Dissolve a Silver salt in a liquid which costs, precondensing wax without decomposing it, immerse record & take out dry leaving a film. Then reduce by formaldehyde

Glass - must be coated with

Pum -

Escape Reg No, filter - to Much add [illegible] Sul Sulfate [illegible] Then [illegible] Sol by hydrochloric gas to [illegible] Cake then dry -

Or forming about separation with saturated solution of [illegible] dry



[illegible] 2" [illegible] Echoes
[illegible] 3 [illegible] Reverberations
[illegible] 5
[illegible] 8" hole
All Wrap

Then when get back' 92

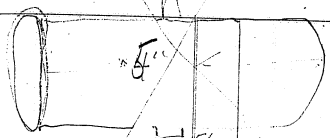
make another & insert them
into the Oldhamo tube
at Andover to see how
much further you go on lower

Use recording phone
Drop on 2" disk record
then do same thing
& Record thru the
3 foot Triangle to see
if double the vibration
& Duplicate data.

Wooden cap of Hand Arm
arrange the tool with
Dia Anchors make it

Make one

Raghadam
Earpiece



Phone for Mr Lowe come and
with his new and old microphone
only mics wanted

Have mics make
all in one case
4 to 1 leverage

See wooden Model
of Boroscopic holder

Xylen to 5 Sulfur dup

Methods on Corner Mark

4 Week off –

Try 2 fewer drops of m Methylen

Liquid Organics 1.5 to 1.99

Acetylene tetrachloride	1.58
Ethyl Iodide	1.82
Benzenehexachloride	1.87
Benzoyl Br	1.54
Benzoyl Iodide	1.73
Bromobenzene C_6H_5Br	1.499
Bromoethylene	1.51
Carbon hexachloride C_2Cl_6	1.99
Carbon tetrachloride	1.6
Chloral	1.51

Colored on Lab Note p 1 on active

Acetylene tetrabromide	2.97
Bromal CBr_3COH	3.34
Bromoform $CHBr_3$	2.88
Carbon Tetrabromide CBr_4	3.42
Carbon tetraiodide	4.32
Para-Dibromobenzene	2.22
Ethylene bromide	2.19
" Iodide	2.07
Ethylidene Br	2.100
" Iodide	2.87
Hexachlorobenzene C_6Cl_6	2.04
Iodoform	4.05
Mercuric Cyanide	4.00
Methyl Iodide	2.28
Methylene bromide	2.49
" Iodide	3.33
Tribromobenzene	3.02
" Ethylene	2.97
Bromoethylene Cl	3.61
Methylene Iodide	3.33

for quarter of little granule
Cup - use Union Cork

Vaughn + brass 1/8"

Jelinek Carbon
1/2 Potassium Chlorate
1/2 [illegible] Syrup
Molasses [illegible] Stick
[illegible]

Baker & Adamson Co.
Glue at one [illegible]
Woodbrown [illegible] of Nickel Stick.
Brownstone [illegible] 134 & Coat

Both Aluminum & Magnesium
is coated with an oxide
& yet make contact
Nickel also make same
granules Will Melt
[illegible] & Liquid L
make 6 9 same &
test

look up Coherers in 113
Wordsworth Graphite & get
points on action of
dif particles

Try [illegible]
in Micro,
Try Tellurium,
Large flake graphite

Try plain iron diaphragm
pass current through it
& talk. Microphone - Jackson
[illegible]

Put carbon balls in
Rubber & dry make a clear

Make 1/6 thick dispersion of salt granules cinchonate w/ metal) salt spray then pour hot Recording Lecture. When pass Current + Cell Lesson solution, ~~[illegible]~~ ~~put together [illegible]~~ Recipulin on

Hard Rubber Dish + [illegible] Cinchonation - average so one end [illegible] on Compression side + other pole on [illegible] side

Tin has a cry when bent possibly Rep. [illegible] make tin disc

Make Chalk with large 1/6 Na_2O oxide

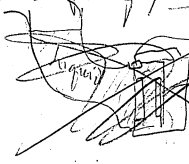
with Sulphate ~~[illegible]~~ Barium (Blanc fix) Chalk can use fused of KOH, all kinds of acid. Neutral or Alkaline Salt solutions —

Make many of them + dont want a displacement sol like $CaCl_2$ $LiCl$ $NaCl$ Borax Etc

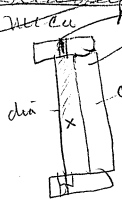
When get best liquid for micro - try cup 1/2 full —

also Cup with finest granules + another with Coarser

~~Heat some picked anthracite Red hot in box filled with charcoal then crush & get all dif sizes to try~~



~~Make a Cast of the Electrode on Mica~~



x pound full granules dumped & then pound full of Sand Molten shellac test on Quadrant

New scheme for Discs

Use Rotten stone & black to get stiff ~~pug~~ dough in Mixer – Put whole pug (squeezing out as much air as can)

Into a Mould the right size for small test discs, press it slightly (Cold) Then take dust and advance plunger to equal proper length for a disc, then use a moving wire or circular saw running p.o. first Cut off first two dough outer pieces, then use a ring or saw to cut off the disc. Dry in Vacuum at low temp as possible – then Varnish, bake & print

see other side

Dry Clay also – experimentally might use Porcelain saw & Cleaner & shaker & could press a cylinder given to which a rotating

Use Wax, shellac, Rubber or

Put carbon granules in a mould (Lampblack (best)) ~~pack~~ Even full then pour the Melted wax, shellac use or if Rubber use Benzol solution of Rubber

This makes a solid disk say

Put Microphone sizes or Diaphragm sizes lay on a block with another on top well I call & talk to it

Note to Bachman about not satisfied some tubes not being larger than others if you have allowed your desire to keep the cell electrical metal & help Wickel to burst

Tell Charlie he should attend to having Wooden Tool that is impossible to prevent some

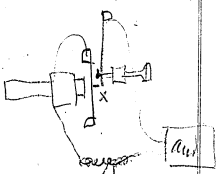
tubes opening up & that was always had them but never to anything of cells as the Metal gets hardened after 2nd Change, and steel bars is not a ~~[illegible]~~ necessity get them to Lenkmann then or you will get in BAD for reason than things not explained

In tests at Garage use 4 ft tubes 2 with stethoscope tubes & get the limit of distance with sub direct hearing

Think the peg of Rillow & the block the method of moulding & baking

Could be spun on glass plate rotated like potters wheel providing it could be shaped off — see Book on Pottery see how they do it — we might have to use some dim funnel

Skillen stone for fine stop stocking. This would prevent make EK



Self for talk to phone to Pompeii

Powdery Carbon points,

~~Hence — use~~

~~in~~ heaviest liquid input

Carborundum granules in phone its more sensitive for work than heavy Carbonds

Gases used in Lo. etc.
Steel (fine) + Silicon
Tellurium + Aluminum

Carbon of silicon
Selenium & Molybdenum & oppo
good & iron gives
best resistivity of Carborundum is

Zincite & Chalcopyrite
Zincite forms an element unusual
all good semiconductors are not
Cinnabar powder using must have
Crystal

Granules for Mange

Make some French
Precip Tungstate
dissolve at 1 pints
powder & incorporate
in 1 Condensate &
Carbons.
Phone Keith Greenlees
Tungstate Lead
Uranate hair on Sacks

Multiply by 9
divide by 5
add 32 —
C & F rule

Ask Emery what he pays for
Oil used with Diesel — of
Experiments have tests made
with Straw Oil ?

Balsh of Coulsonde
I am hoping Carbonyx
at Long Lake —
Marked # 1135 Mats
Cured under pressure

New Disk Thin Clay
2.37 grams pot per
1/1000 Inch
Weight of 1st Disc
0.23 grams average
Calliper 263

300 China Clay
120 Rosin 11% Shaw oil
28.8 flock — or 24% of wt of Rosin
115 cc Solvent Naphtha

above in
~~Also~~ formula for 1st Sample
disc made.

The blank powder not evenly loaded in mould hence high in Center showing great shrinkage — light color around outer part (can see very hard general surface — Vaporize dried to quench in ocean — bubbles
Stood 10 drops on 6 in Tar 1 ft high
1 drop 2 ft a bubble — two on 2nd
drop — Also in GK
Powder. Shrink 30 weeks from
Vermicelli like 11 mm, dried in
Vac 200 Torr

Infusible Condensate.

110 D2 Nat Oil
100 Rosin
15 6/4 — do show one 4% Pero

Get some ~~Cryolite~~ Amorphous WVa "
California White Meerschaum
~~Allegheny stone~~ Pipe Clay
ware, + other Mineral
porous stones, Lava Gulf
Cylinder South Dismond
test plain + [illegible] with
powders some [illegible] much
of Clay fine stuff [illegible]
refill Rosin + [illegible]
[illegible] or [illegible]

Tell Woore about spring (10) last
motion in link — should be
steel wire pressed in or
Double Continuous wire back
loop wont do —

See what is ~~[illegible]~~ larger of ~~our~~ smallest Mixer —

1 Get supply of flock —
[illegible] much best
2 China Clay wet hard —
by Can get Mortar —
3 Try using best American Chum
[illegible]
4 Fig up for 25 discs per day
10 Hours —
5 = Workout Creasing machine
to 30 mark
6 Fence loading —
7 Varnish & Gold Lettering
8 = Neat & Cold Letters —

for Loading Dolly also might be
Good idea ~~[illegible]~~ the consider
Only using 1 bags in one blank
another bags in other — regulating
flower returning to Dough to
his need again —

New Mixer record pressure
use these for Dolly discs
only —

for Edging, see if hot tool
will stamp it or cut it or
hot tool pressure and fold
left then follow with
Turning tool —

Get some Tea or dung or
and ~~add~~ use of Nitrate
Ag or Chloride strong mg
Salt will do also —
also try [illegible]

or if 6/4 or other absorber of Iodine will dissolve Ag
power bottom + see if it will deposit iodide Ag from a Silver Salt.

Electrode of silver may dissolve

Have Dummy Silver in discarded Wax mould & plate it, using formaldehyde
Glass salvaging section
Iodine 6/4 for silver
Water will dry it
So no alcohol in the 40%
Formalin to dissolve wax

Perhaps Iodide of Ag dissolves in Cl. compounds
a [illegible] of [illegible] wax away

Add 5 Wax [illegible] drops of plus [illegible] of [illegible]

for absorbing the Iodine

Try 2 Amps in Multiple & also series

Try one Amp with amplifying lever

IMPORTANT

Possibly the very old nickel books say Bismuth & Iron
Overall Cell as great Iron — Now Iron goes bad with Bi hence in body Cells Iron dry + it kills
improvement by Bi —
Should have very much more Iron (10) same proportion as in small test cell

Make 2 A4 — 6 @ + 3 d
tubes 10/-8. 12 Ni'

get some Barite or Nature
Sulphate Barium. + Cut
Enough Chalk from many
Chalks to precipitate
in form also good
Quantity with which of
dif precipitate by in
bunch

Try getting Enough
Cylinder from
Crystals - Alum
etc heavy wanted
Crystalizing

Try Water glass + the
powder mix in pug mill
& print & put in CO_2 gas
to harden.

90% Litharge 10% glycol
sets quickly as a cement
Try - glycerine will do but
glycol better harden in
1 or 2 hours.

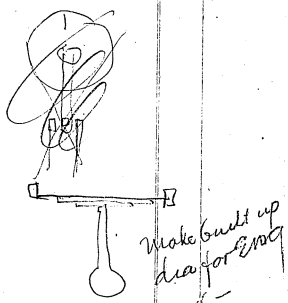
Try in Sol Napt Rosin -
Some Rubber - see what it
does to, perhaps it will
take place of Drawing oil to
great advantage

Make some Carb Granules
moistened with 20%
~~Sol~~ KOH, ~~bake~~ bake them
at 212,

Dry Steatite, Zinc Blende, Hook & white – Electric Calamine
slate, Serpentine, Magnetite

Sr CO_3 moistened Silicate Soda
pressed & put in CO_2 hot 212

Req Sr CO_3 highest possible pressure
wet with 20% KOH, then baked



Roll out Dalleys dough for drying
see of practical

A 4 Cap 180
Sig Bat 22.5

A-4 – 1370 cc 90 grm LiOH
Sig Cell 243 12 "

A.4 7.61 cc per amp
Sig 10.8 cc "

A4 2 LiOH per amp
Sig 1.87 "

July 29 1918.

Dimroldin just received a 606 of New Dso blank work
Clay Resin - Straw pitch - Lampblack
purged in mixer, boiled up just
between 2 pieces paraffin paper
& put in hydraulic press 90 lb sq in
squirts very fine with homogeneous
stained dry faces strips from
at Easily - Made 10 dozen
from 1 piece of paper no
injury to paper —

Can use NiOH. finer loadings
" ½ the LiOH. @ 66% of Reg

Steel poor drawing steel,
More separating pins
15% KOH.
Load more flake per pump
" ½ the flake make more in
between flakes.
Tamp falls too far
" to heavy
Rings on too tight
— by hand.
Investigate Lithia scales
measuring + precision - is Li tested
Is there enough room for larger
pin paper alone,
Does NiOH prevent 20 mesh
silk screen colour it should
be,
Load tubes for a few cells
Were 40 on 180 & some
Were 20 on 180
all were 50 —

Bromide of lead cylinder
Emf — Phlbr not affected by
KOH.

Platin Platinum Tray

Refill 25% Li OH.
A4 =

good cell. giving results

L 30 — 3 grids 10 inches
to grid — 3/16 —

Heat fresh precip Bismuth
hydroxide in KOH allow
to settle — pour off —
find a salt which in
small quantity dissolved
in KOH will precipitate
the Bi dissolved

A4 10% Bi in Ni
use sheet of perforated
zinc test cell to keep Bi
from attacking the Iron
when reduced

Want to find something
that keeps Bi OH from
dissolving in KOH —

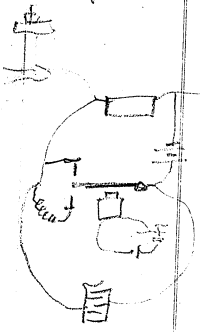
try Bi 10% in Ni — A4
with 2 iron to each
plate — heavily
overcharge to get whole
of iron active to get
full Bi capacity of
each plate probably
only 2 Ni plates
to 18 Zi —

Small Jet Impulse
Bowman Engine with
Cooper Condenser
for Gasoline by
Howell — B
Marked

Of Light Scale was fired off
weighed out 10 grams
While supposed to have
½ liters went to
11.827 — I added it —
wt 9.325.
Extreme Vacuum of
2.499 grams
23 0/0

Miller Can make Rubber
21 X 21 — 2" thick or
less — $2 lb —

Phonoplex



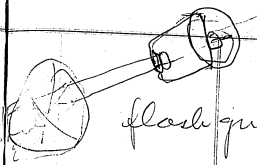
Dec of Sur 3/4 Tubes are

1½ Spurred —

get some NaHypochlorite
that chlorates with

Chl K etc with an
Apple chuck also
Chlorates of Metals —

8-13- slippery
Dope for Nickel



flash guard

also bellow of grafite of
Compressed hemp black Gases of
shell gases distribute l
or at Edge.

get Hoffman make up
right proportion of his
mixt, test our way of
mixing.

~~Off fred out of mixer~~
want worm & wiper
arm is far from bottom

125 wood
95 Chalk
26 gms Rosin 10.4%

Rosin solution has been
titrated with 1 pt Nitric
2 washes in soda
washes

Asphalt dissolves

See how much HCl can
be put in our Varnish
holding it to Pour
possibly Twenty Cake
Care of the Chlorine
Prevent gas,

Treat Nitrate with
Dimethylglyoxime first in
Cell

See fred Off of wz
have Palladium gens
in Chalk phone
if not use them

A small heap of finely divided Chlorate of K supported on a filter Paper on a tripod is saturated with a solution of Phosphorus in Carbon Bisulphide as soon as latter Evaporates the Mass Explodes with loud report & Clouds of smoke

L. Oth make Gallovdal Stannic acid, Ferric oxide Chromic ox

Drains ~~smoke up~~

Organic salts Internally based & Mike Cylinder / diffs Manganic salts

Monahan

Should get some steel with a little lower Carbon & try — They should not Crack which not annealed.

Also seam only 2/3rds weyin — also best test is bars without annealing —

~~#5710 Basketball Fr~~
~~Telephone Hazel 2176~~
~~Hazel 2176~~

~~Write Deane to rig up a blower + heater + blow Kingsbury Wren 3" pipe 10 ft long also other provisions also blow air thru Chrum 20% of pots get some 60% —~~

~~Design the Cargo bow spent to swing up so hatches can be put on on board~~

Chalk blank

120 Rosin
24% of Rosin in flock
300 Chalk

Equals 120 lbs Rosin
28.8 lbs flock
300 lbs Chalk

Rosin	6.00	50c	16
flock	2.88	10c	1
Chalk	3.00	10c	1
	11.88		

400 blanks 2.97

Use of Ammoniacal

Acetate of Lead

$(AcO)_2Pb$

will precip. mercury from water & make it insol. — vide ~~[illegible]~~ also 10 Chlorine Calorimet. (for Dise)

Mining —

1st Acid in goes down chalk

Sulphuryl Chloride BP 151 Sp 1.7

Prepd. usual SO_3 + PCl$_5$ acetic stirred Combine. SO_2Cl_2 using no OH well not act with water or fume in air SO_3 + free SO_2

Soak Cu Plate in Hyposulphite work

Manganese hyposulphide + Dry above

2nd Soak + precipitate Manganese hydrox in CuO plate

3rd Precip 2/3 Cu hydrox with 1/3 Manganese hydrox + oxidize — + heat.

Soak Manganous Sulphide in CuO plate to Dry add lead weakest Sulfide Oxidizes Rapidly in air

Try Manganous Borate in CuO plate

Manganates

Manganese hypoxyde

Bolwedel P 200 Mn get the Wad Combination + Heat

Chloride either Sp. Gravity or alcohol alone
either its used of alkali metal
chloride not being out

Calcium Manganite $CaMnO_3$
also other Manganites - might be
good O Electrodes a mixt in
NaOH or KOH make them
all chlorate mixt.
$CuMnO_3$

Load a 1 inch tube with
flake of black ox manganese
stance on NaOH & put against
Zinc in Sal ammoniac, the
MnO_2 is a conductor & may
not polarize with such
dense conductor as manganese
lay Ni flakes
& thank the whole
trouble with electrodes cells
is poor conducting of the
peroxide which is cured
by the flakes & we can get
heavy currents

Lelande

Dark CuO plate in Permanganate K & heat. Tol dissolves to Mn perox

Oxychloride Copper alby and add in Nap OH.

Atacamite $Cu_2Cl(OH)_3$
Scarcely soluble in acid
its and Oxy(Cl) Copper

Copper Nitrate (Basic)
Blue green crystals from Aqueous
Sol in water, approaches
Connesponds to Atacamite
Its richness is as being
one of the few Nitrates
deposited sol in Water

$Cu_2(NO_3)(OH)_3$

Obtained by action of

~~partial precipitation~~ of Copper
Carbonate on Normal Nitrate
or by partial precipitation
of the latter with a
Carbonate the Carbonic dioxide
gas of which escapes

Hydrated Normal Copper
Nitrate corresponds in tin foil
tates is oxidized gradually
& forms basic Copper Nit

$Na_2H_2Sb_2O_7$ (is the usual
Soda Salt) try it in tube
or scraped in the O plate.

Lots green Sb Compound
Salts of Thio antimonic
gas perhaps mix Sulph at boiling water

Ferric hydroxy sulphate with
Arsenous acid (Arsenic) very
slightly soluble

Arsenates & Arsenite of heavy
Metals may act as hydrogen
of Conductivity with flakes
or Cu O Reduced Chloride is
used

Copper salt Schweinfurter
green also Scheeles salt
green

Hypochlorite of heavy metals
Hot water with Na

Sulphides of heavy
Metals.

Lelande
Use flake of zinc mixed
with the Sulphate
for this work like also
Nickel battery

Zinc hydroxy dissolves in
Ammonia Oxide K Oxalate

Discarded Mr Cu moulds of
disc records they oxidizing
the Copper for Lelande &
using Ni for hydroxy

Heat Room with Cu &
also Cu reduced Metal
also Ni metals

Persulfates of Cu or Fe form basic salts by adding $CuOH$ or Fe_2O_3 OH – to make insol. in NaOH, or NH_4 Chloride

ditto Nitrates

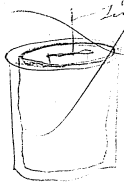
Bi Chromate – Etc

Basic Arsenite

Among Copper Copply reduces Nitrate Soda to Nitrite Soda and part Nitrate [illegible] when Copper or Acid is added

In presence of Cerious salts Atmospheric O_2 is absorbed by Arsenious acid,

Mix Cu hydroxide with Kaolin China clay or other powder in mixing machine, mould & heat to dehydrate & reduce to CuO, & then heat to red heat in NaOH Etc



Coconut or Peach Kernel Carbon ~~[illegible]~~ Saturated with oxygen in the process

Zinc & Copper
NaOH, Cooling
Arsenite Soda which
is depolarizing agent

Lead & other Metals.
for replacing Cu –
Ar. Sb. Etc – there are double
Metals
also Quad Metals,
bring occasion to Metals

Basic Phosphates

Sheage [illegible] of high Nacl
treated Metals, [illegible] with
Nacl OHx by having [illegible]
access on the [illegible] then
washing & [illegible] in Lorch
NaOH, Then [illegible] NaOHx

is then [illegible] – Iron can [illegible]
[illegible] with [illegible] can [illegible]
an [illegible] divide [illegible] the,
for staying [illegible]

Could forget to try Ferry and
[illegible] Salts organic
[illegible] organic
to [illegible] [illegible] Zn(OH)2

Perox lead only little Sol
in NaOH, Mixture of Salt
with buffer [illegible]
containing [illegible] of Zinc
to keep out Pb(OH)2 from
reaching Zinc Electrode
This is a general idea

Stable Cupric the Basic

Salt 7 CuO, 2 SO_3 5 H_2O

Prepared by digesting
Basic Cop Sulphate
7 CuO 2 SO_3 5 H_2O with
10% Potassium hydroxide
Sol washing precipitate
with Cold Water & Albertol
& Dry at 100 Cent
Light blue green color

The Basic Sulfate could
be obtained by action of
50 cc of 1.2N Sodium
Hydroxide on a sol of
5 grms Cop Sulphate
in 200 cc orth water
washed & dried at 100°C

Break Asbestos in $Cu(OH)_2$
& press dry again

Try Sulphonic acid salts
for dissolving Lyophobic
such as Butylsulfonate of
Soda, Methyl ether
Sulfonates

Get all the Oleates of
the metals to alloy
with Rosin Oil

Try the Azo compounds
as oxidizers

Artificial Sulfide Lead made anode in Sulfur Water producing small quantity of Lead Sulphate or Salt Peroxide Lead is formed Acid of high minimum Exceed 1/5 or HAS formed the peroxide protects Sulfide from action of acid

Barium Ferrate not decomposed by Cold Sulphuric Nitric Acid or Concentrated Zinc —

When excess of Alkali chloride is added to Ammonium Sol of Nitroprus- an usual salt precipitated may be used to get Ni from Nickel where other hydroxide are dissolved

When solution Containing Ammonia & Cupric Hydroxide are electrolyzed with platinum or Iron Anode peroxide of Copper is deposited on anode —

50 ↓	31		
200 -	62		
400	76 -		

group 1

Mustard Gas, highly persistent
Lethal in low concentration
dont penetrate a German Mask

group 2

Chloropicrin - NC Mixture
Moderately persistent, Lethal,
Medium concentration necessary
penetrates present German Mask

Group 3

Phosgene possibly Cyanogen
Chloride, or other non gas

Group 4

Bromobenzylcyanide
moderately persistent not lethal
Effective in extremely low
Concentrations
Diphenylchlorarsine do

Butyl Mercaptan -

Stannic Chloride -

Silicon tetrachloride - group 1

some penetrate respirators

Gas in masks include

Lachrymators Sneezing &

Camouflage gases +

Remark on group 1

Irritant gas affects Eyes

throat lungs & skin -

Boil point is 420° Fahr

at ord temp vapor given

off very slow

Keeps evaporating for 2 or

3 days & can be a long

Report days must experiment

with shells to see

to finely spray the gas -

hence will not persist

so long

Diphenylchloroarsine

a sneezing gas very

irritating to nose. Head

clumps in granules of

1 part in 10 million pts of

air - difficult to filt

also to pulverize infinitely

divided form necessary

penetrates all masks

with secondary except

latest type of masks

specially fitted with

Charcoal packing

Phosgene, low persistency

very lethal (Oxley)

Chlorpicrin 2 to

3 times more persistent

than phosgene

is also quite deadly

is used with 20% Stannic Chloride (smoke) valued high by British for persistency penetrates German mask quite easily

Brom-Benzyl Cyanide most powerful lachrymator known. it is 1/1000. more diluted in air Ethyl Iodoacetate - is quite persistent. - about equal to Chloropicrin -

Butyl Mercaptan foul smelling like skunk used to disguise other gases

Stannic Chl smoke. Valued penetrates masks except they are filled with combustible cotton or wood padding but dead penetrate nearly as much as Diphenylchloroarsine

Its used by the French in bombing charges of all gas shells to show the point of burst

British mix 1/5 th Stannic Chl & 4/5 Chloropicrin to form a shell filling it has more persistency than any other compound except Mustard gas.

White Phosphorus Best
Smoke producer Known

Why not Hydrofluoric
acid —
Cocodyl — Mustard
Burning Sulphur

They want a gas they
can give 7 lb + 7 lb
by special device they
USA can change them

from my reports I notice
Germans use Ethyldichloroarsine

also Phenyldichloroarsine
also Prussic acid — Diphosgene

German used Chloroacetic
acid, Chlorosulfonic
dioxide

Frenchman use Chloride of
phenylcarbylamine —
Bromomethylketone

Chloroformate of Dichloromethyl

Mustard gas, Dichlorodiethylsulfide

Get Copy of 441.52

126
34

Demand made
from Information Section
of War Dept — Room 2-224
group B 6th & B St
Washington

174

130 (300 (23.7
260
400
390
10
23.7

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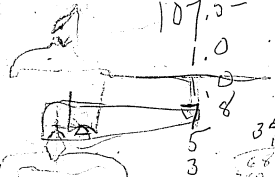

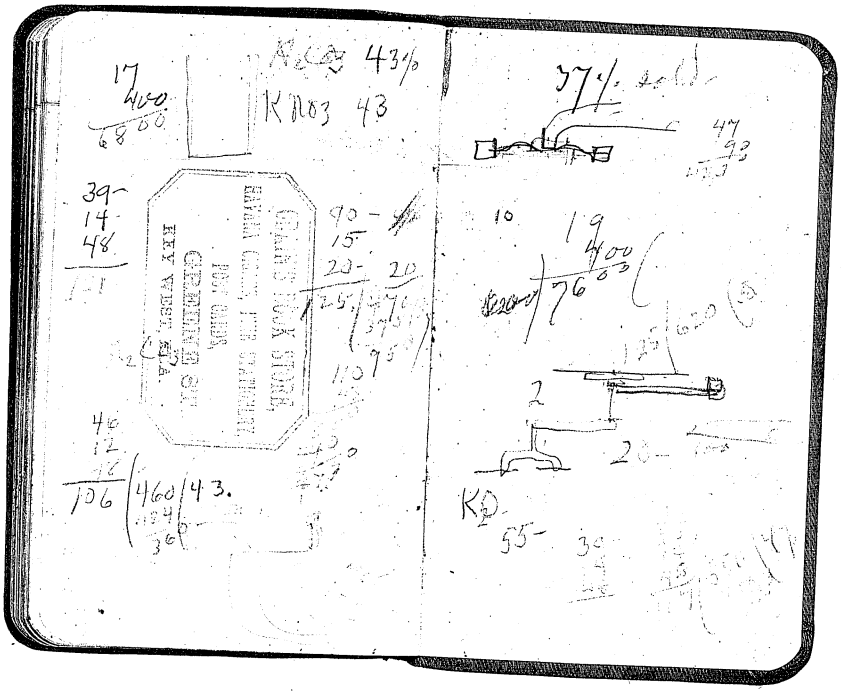
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KR03 43
37%
GARDEN CITY STEEL
KANSAS CITY, KANSAS
KANSAS CITY
CHICAGO
ST. LOUIS
KC
55-